

1. Complete the following sentences. Choose from the following words: 11 marks

element, positive, compound, atomic number, orbit, liquid, protons, no, atom, gas, electrons, solid, neutrons, negative.

Some may be used twice.

The three states of matter are Solid, Liquid, and gas.

All matter is made up of atoms.

Matter that has only one kind of atom is called element.

Linked-up atoms from matter called molecules.

The formula for table sugar is $C_6H_{12}O_{11}$. Sugar is a compound.

How many different kinds of atoms does sugar have? 3

One molecule of sugar has: 6 atoms of carbon, 12 atoms of hydrogen and 11 atoms of oxygen.

The three main parts of an atom are protons, neutrons and electrons.

A nucleus is made up of proton and neutrons.

Electrons orbit the nucleus.

A proton has a +ve charge; an electron has a -ve charge; a neutron has 0 charge.

An entire atom has 0 charge.

Protons = Electrons = atomic number

Atom and change	Name or ion formed	Symbol of ion formed
Magnesium (Mg) atom loses two electrons	<u>Mg²⁺</u>	
Nitrogen (N) atom gains three electrons	<u>nitride</u>	<u>N³⁻</u>

2. Give the chemical symbol for any element: 2 marks

a in the same group as fluorine (F) Cl b in the same period as sodium (Na) Mg

3. Write the chemical formulas for: 2 marks

CaO BaI₂ Be₃N₂ Al₂O₃
a calcium oxide b barium iodide c beryllium nitride d aluminium oxide

4. Which elements are represented by the following symbols? 2 marks

H hydrogen Na sodium
P phosphorus Mg magnesium

5. Write down the electronic configuration of: 3 marks

a) Chlorine (atomic number = 17) 2.8.7
b) Boron (atomic number = 5) 2.3
c) Silicon (atomic number = 14) 2.8.4

6. Use the electron configurations of question 5 to give the period & group of the 3 atoms: 3 marks

a) Chlorine Period 3 Group 7
b) Boron Period 2 Group 3
c) Silicon Period 3 Group 4

d) The atomic number of zinc (Zn) is 30. Therefore, the ion represented by the symbol $^{65}_{30}\text{Zn}^{2+}$ has:

30 protons, 35 neutrons and 28 electrons
65 protons, 30 neutrons and 32 electrons
30 protons, 65 neutrons and 28 electrons
30 protons, 35 neutrons and 32 electrons

e) An atom of chlorine (Cl) has 17 protons, 18 neutrons and 17 electrons. Which of the following statements is incorrect about the atom of chlorine?

A It has an atomic number of 17.
B The atom would have no overall electrical charge.
C It would be in Period VII.
D It would be in Period 3.

f) Which of the following lists contains only compounds?

A water (H_2O), glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) and carbon dioxide (CO_2)
B tungsten (W), phosphorus (P) and chlorine (Cl_2)
C Vegemite, lime water ($\text{Ca}(\text{OH})_2$) and plutonium (Pu)
D salt (NaCl), air and iron (Fe)

g) The most likely formula for magnesium iodide is:
A MgI B Mg_2I C MgI_2 D MgI_2